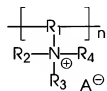


WHAT IS CLAIMED IS:

1. An ink composition comprising (a) water and (b) a complex of (i) an anionic dye, (ii) an anionic lightfastness-imparting agent, and (iii) a polyquaternary amine compound.

2. An ink according to claim 1 wherein the polyquaternary amine compound is of the formulae



or



wherein n is an integer representing the number of repeat monomer units, R₁ and R₇ each, independently of the other, is an alkylene group, an arylene group, an arylalkylene group, or an alkylarylene group, and R₂, R₃, R₄, R₅, and R₆ each, independently of the others, are hydrogen atoms, alkyl groups, aryl groups, arylalkyl groups, or alkylaryl groups.

3. An ink according to claim 1 wherein the polyquaternary amine compound is selected from the group consisting of polydiallyl ammonium compounds, polyquaternized polyvinylamines, polyquaternized polyallyl amines, epichlorohydrin/amine copolymers, cationic amido amine copolymers, copolymers of vinyl pyrrolidinone and a vinyl imidazolium salt, and mixtures thereof.

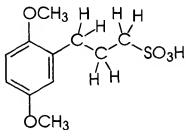
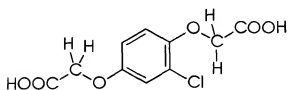
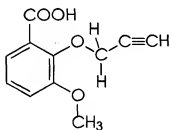
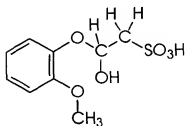
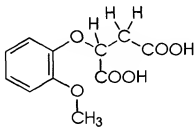
4. An ink according to claim 1 wherein the polyquaternary amine compound is a polydiallyl dimethyl ammonium compound.

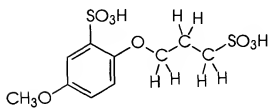
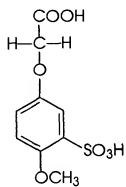
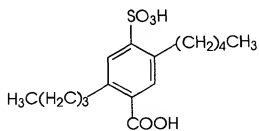
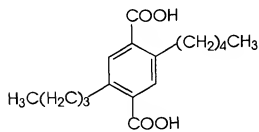
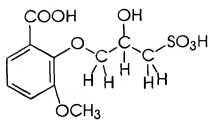
5. An ink according to claim 1 wherein the anionic lightfastness-imparting agent is an ultraviolet absorber.

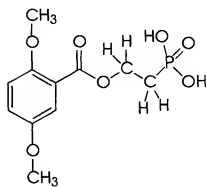
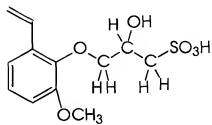
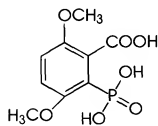
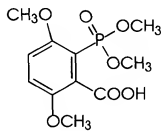
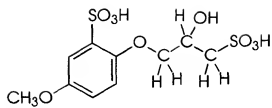
6. An ink according to claim 1 wherein the anionic lightfastness-imparting agent is selected from the group consisting of (hydroxyphenyl)benzotriazoles, hydroxybenzophenones, hydroxybenzoic acids, alkoxybenzoic acids, esters of substituted benzoic acids, (hydroxyphenyl)1,3,5 triazines, and mixtures thereof.

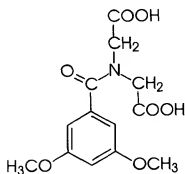
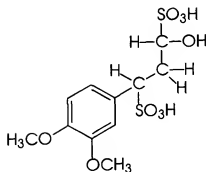
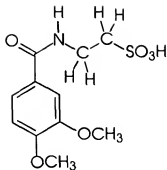
7. An ink according to claim 1 wherein the anionic lightfastness-imparting agent is selected from the group consisting of 2-hydroxy-4-methoxybenzophenone-5-sulfonic acid; 2,2'-dihydroxy-4,4'-dimethoxybenzophenone-5-sulfonic acid; 2,3-dimethoxybenzoic acid; 3,4-dimethoxybenzoic acid; 3,5-dimethoxybenzoic acid; 2,5-dimethoxybenzoic acid; 2,6-dimethoxybenzoic acid 3,4-dimethoxybenzenesulfonic acid; 3,4,5-trimethoxybenzoic acid; 2,4,5-trimethoxybenzoic acid; 4,5-dimethoxyphthalic acid; 2,3-bis-isopropylidenedioxybenzoic acid; 2,3-bis-(carboxymethyloxy)-benzoic acid; 2,5-dihydroxyphenylacetic acid; and mixtures thereof.

8. An ink according to claim 1 wherein the anionic lightfastness-imparting agent is selected from the group consisting of









and mixtures thereof.

9. An ink according to claim 1 wherein the anionic lightfastness-imparting agent is a reducing agent.

10. An ink according to claim 1 wherein the anionic lightfastness-imparting agent is selected from the group consisting of sulfite salts, thiosulfate salts, trithionate salts, tetrathionate salts, and mixtures thereof.

11. An ink according to claim 1 wherein the number of cationic sites on the polyquaternary amine molecule for every one anionic site on the dye molecule is at least about 1.5, and wherein the number of cationic sites on the polyquaternary amine molecule for every one anionic site on the dye molecule is no more than about 10.

12. An ink according to claim 1 wherein the number of cationic sites on the polyquaternary amine molecule for every one anionic site on the lightfastness-imparting agent molecule is at least about 1, and wherein the number of cationic sites on the polyquaternary amine molecule for every one anionic site on the lightfastness-imparting agent molecule is no more than about 5.

13. An ink according to claim 1 wherein the molar ratio of dye molecules to lightfastness-imparting agent molecules is at least about 2:1, and wherein the molar ratio of dye molecules to lightfastness-imparting agent molecules is no more than about 20:1.

14. An ink according to claim 1 further containing a nonpolymeric salt.

15. An ink according to claim 14 wherein the nonpolymeric salt is present in the ink in an amount of at least about 0.1 percent by weight of the ink, and wherein the nonpolymeric salt is present in the ink in an amount of no more than about 40 percent by weight of the ink.

16. A process which comprises (a) incorporating into an ink jet printing apparatus an ink composition comprising (a) water and (b) a complex of (i) an anionic dye, (ii) an anionic lightfastness-imparting agent, and (iii) a polyquaternary amine compound, and (b) causing droplets of the ink composition to be ejected in an imagewise pattern onto a substrate.

17. A process according to claim 16 wherein the printing apparatus employs a thermal ink jet process wherein the ink in the nozzles is selectively heated in an imagewise pattern, thereby causing droplets of the ink to be ejected in imagewise pattern.

18. A process according to claim 16 wherein the printing apparatus employs an acoustic ink jet process wherein droplets of the ink are caused to be ejected in imagewise pattern by acoustic beams.

19. A process according to claim 16 wherein the printing apparatus employs a piezoelectric ink jet process, wherein droplets of the ink are caused to be ejected in imagewise pattern by oscillations of piezoelectric vibrating elements.

20. A process which comprises (a) incorporating into an ink jet printing apparatus an ink composition comprising (a) water and (b) a complex of (i) an anionic dye, (ii) an anionic lightfastness-imparting agent, and (iii) a polyquaternary amine compound, and (b) causing droplets of the ink composition to be ejected in an imagewise pattern onto a paper substrate.